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## RADIOCOMMUNICATIONS AND SEARCH AND RESCUE

### Long-Range Identification and Tracking of Ships

Submitted by IMSO

#### SUMMARY

**Executive  
summary:**

As requested by the Committee, this document provides a detailed analysis as to how IMSO intends to undertake the role of LRIT Co-ordinator, based on the Performance Standard, Technical Specifications and other published requirements of IMO.

**Action to be  
taken:**

Note the information provided

**Related  
documents:**

MSC Resolution 210(81), MSC 82/24; COMSAR 11/18.

## 1 Background

1.1 Certain aspects of the performance of the International LRIT System are to be overseen, reviewed and audited by the LRIT Co-ordinator, appointed by IMO to act on behalf of all SOLAS Contracting Governments (IMO MSC Resolution 210(81), annex, paragraph 1.2).

1.2 The MSC, at its eighty-second session (Istanbul, December 2006), appointed IMSO to be the LRIT Co-ordinator. In taking this decision, MSC 82 "*invited IMSO to take whatever action it could in order to ensure the timely implementation of the LRIT system.*" In addition, MSC 82 "... *invited IMSO to submit a paper to its next session giving a detailed analysis of how it intended to undertake the role.*" (MSC 82/24 paragraph 8.49). This document is intended to meet the request of the Committee in this regard.

1.3 Since the eighty-second session of the MSC, COMSAR 11 has considered the implementation of LRIT further, and reached a number of decisions which have been taken into account by the *Ad Hoc* Working Group on Engineering Aspects of LRIT. A number of policy issues that remain to be decided will be considered by an Intersessional Working Group of the Maritime Safety Committee (ISWG-LRIT) in July 2007 and some final decisions will be left for the MSC to take at its 83rd session (Copenhagen, October 2007).

1.4 As a result of these continuing uncertainties, it is not possible for IMSO to provide completely definitive answers to every question as to how it intends to undertake the role of LRIT Co-ordinator. This paper therefore provides information on those preparations that have been possible in the light of the information that was available at the time this document was submitted.

## **2 Consequential Action by the IMSO Assembly**

The first and most vital preparatory action has been the consideration, by the IMSO Assembly, at its Nineteenth (Extraordinary) Session (London, March 2007), of the Organization's appointment as LRIT Co-ordinator, and consequent decision "... *that the Organization may assume the functions and duties of the LRIT Co-ordinator with effect from 7 March 2007, at no cost to Parties, in accordance with decisions of IMO, where Article 4 of the amended Convention will be applied on a provisional basis.*" (ASSEMBLY/19/8, paragraph 7.8)

## **3 The Role of the LRIT Co-ordinator**

The IMO Terms of Reference for the LRIT Co-ordinator are given in section 14 of IMO MSC resolution 210(81): *Performance Standards and Functional Requirements for the Long-Range Identification and Tracking of Ships*. Other key reference material is included in IMO MSC resolution 202(81): *Adoption of amendments to the International Convention for the Safety of Life at Sea, 1974, as amended*, and IMO MSC resolution 211(81): *Arrangements for the Timely Establishment of the Long-Range Identification and Tracking System*.

## **4 IMSO LRIT Implementation Plan**

4.1 IMO has developed a Road Map for the implementation of LRIT (MSC 82/24/Add.2 Annex 16) which provides information on some of the key actions and decisions that need to be taken before a smooth and complete introduction of the international LRIT system can be achieved. Taking this in conjunction with the key implementation dates given in new SOLAS Regulation V/19 (IMO MSC resolution 202(81), IMSO has developed a draft Implementation Plan showing key actions and dates for successful implementation. The IMSO Implementation Plan is an organic document that will evolve as the project itself evolves.

4.2 The major milestones (dates) are summarised in the following table:

2008	31 December	LRIT System OPERATIONAL
	1 Jul–31 Dec	pre-operational testing phase
	1 Jan–30 Jun	system development phase
2007	November	IMSO/IMO sign contracts for IDE + IDC
	3-12 October	MSC 83 decides contractor for IDE + IDC
	July	IMSO evaluates IDE + IDC proposals
	April	IMSO sends out RFP for IDE + IDC
	?	IMSO receives first start-up funds
	7 March	IMSO Convention amendments implemented

*Table 1: LRIT Implementation – Key Milestones*

## 5 Establishing the IMSO Budget for LRIT

### 5.1 Budgetary and Accounting Procedures

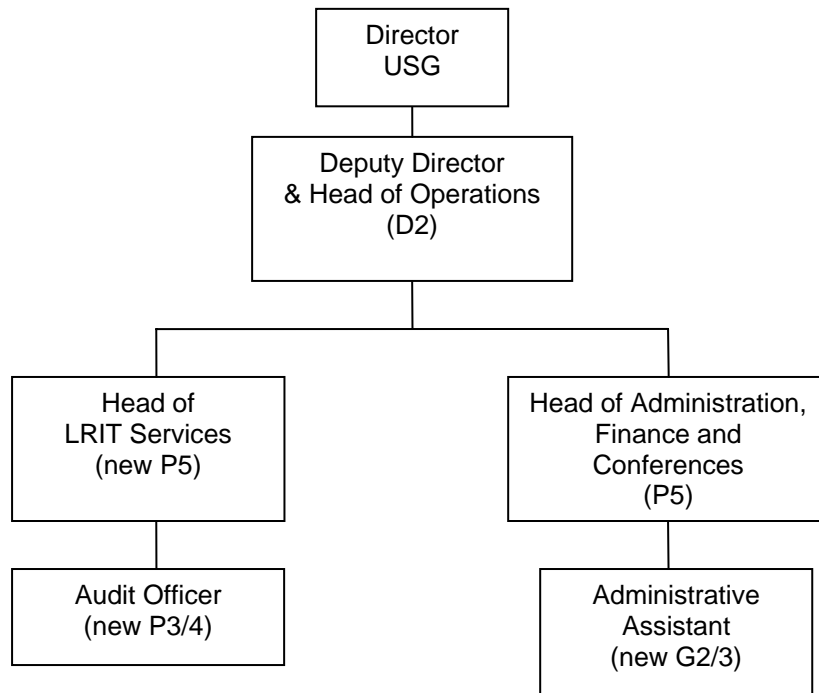
.1 The procedures for development and approval of the budget of IMSO were approved by the IMSO Assembly at its sixteenth session (Assembly 16/15 – Report, paragraph 9.1.2). They provide, in general, for the Director of IMSO to develop the budget and the IMSO Advisory Committee to agree it, on an annual basis. The annual budget is therefore subject to review by the IMSO Advisory Committee before it is implemented. These procedures require amendment to incorporate the LRIT elements of the budget, which, unlike the present GMDSS and Legacy Services, are not subject to agreement by Inmarsat, and therefore they are under review by the IMSO Advisory Committee.

.2 It has been a fundamental and continuing policy in the Director's development of these proposals, fully endorsed by the Advisory Committee, that all costs, capital and revenues relating to LRIT should be kept completely separate from those relating to GMDSS and other Legacy Services, which are funded on a different basis. The Director, with the assistance of the Accountant, has established accounting systems and procedures that will allow complete financial separation of these two business streams on a daily basis within the Organization's audited accounts.

### 5.2 LRIT-related Personnel Costs

.1 In developing proposals for implementing the role of LRIT Co-ordinator within IMSO, the Director has recognised the need to enhance the staff of the Organization so as to be able to undertake its newly expanded role. The IMSO Director intends to keep the number of additional staff to the minimum consistent with efficient and effective performance of the LRIT-related work.

In addition to the existing members of staff, the Director expects to establish a maximum of three new posts, principally to handle LRIT-related work, as shown in figure 1.



*Figure 1: Proposed Directorate Staff Structure*  
*Note: Posts are graded in accordance with the UN Common System*

.2 IMSO has decided that the pay, allowances and benefits for all staff shall be aligned with the recommendations of the International Civil Service Commission (ICSC).

.3 The Director anticipates that, subject to progress with the international preparations for implementing LRIT and the availability of LRIT start-up funding, the Head of LRIT will start work during 4th quarter 2007, the Administrative Assistant in 1st quarter 2008 and the LRIT Audit Officer in mid 2008.

.4 Some members of the Directorate staff will work on both LRIT and GMDSS/legacy business; others will work exclusively on LRIT business. The effort, and therefore the costs, of each post will be apportioned between the business streams as follows:

	GMDSS/Legacy	LRIT
Director	50%	50%
Deputy Director	70%	30%
Head, Admin, Finance etc	50%	50%
Head, LRIT	0%	100%
LRIT Audit Officer	0%	100%
Admin Assistant	50%	50%

*Table 2: Apportionment of staff effort*

### 5.3 Office space and services

.1 As the staff of the Directorate increases in number, so the office space occupied by the Organization will need to increase. Arrangements have been made with IMSO's landlord to allow for this increase, within the timescales dictated by the need to hire new staff members. The budget also accommodates the possibility of the Organization moving to other premises in due course.

.2 A similar increase in budgetary provision has been allowed for in the cost of services paid for by the Organization (heat, light, electricity, telephones, computer network, etc).

### 5.4 Tax

Under the terms of Article 7(1) of the Headquarters Agreement between IMSO and the Government of the United Kingdom, the Organization its property and income are "*exempt from all direct taxes*" levied by the Government of the United Kingdom. The Organization therefore will not charge UK Value Added Tax on LRIT transactions.

## 6 **Legal Basis for Ongoing Oversight and Audit**

6.1 Under the terms of the Performance Standard (IMO MSC resolution 210(81)) IMSO is required to

- .1 review the performance of Application Service Providers (or Communication Service Providers when they act as Application Services Providers) providing services to the International LRIT Data Centre;
- .2 audit the performance of all LRIT Data Centres based on archived information and their fee structures;
- .3 audit the performance of the International LRIT Data Exchange and its fee structure, if any; and
- .4 verify that Contracting Governments and Search and rescue services receive the LRIT information they have requested and are entitled to receive.

6.2 IMSO will levy charges for providing these services (see section 6 below) and will need to establish a formal basis for oversight, performance review, audit, charging, resolution of disputes etc. This will be carried out through a legally binding public/civil contract called the LRIT Public Service Contract. The text of this standard contract is being developed from the Public Services Agreement (PSA) presently in use to establish the basis for oversight of GMDSS satellite operators.

6.3 The International Data Exchange, all Data Centres, and those Application Service Providers (ASPs) providing services to the International Data Centre will be required to sign an LRIT Public Service Contract with IMSO.

## 7 Estimated Budgetary Requirements – 2007-2010

7.1 On the basis of the above plans and other assumptions, the IMSO Director has developed an agreed LRIT budget for 2007, and illustrative LRIT budgets for the years 2008 to 2010. The headline figures for the LRIT-specific elements of these illustrative budgets are as follows:

2007	£ 314,000	(note: assumes LRIT work starting on 1 July 2007)
2008	£ 671,000	(allows for some staff hired during the year)
2009	£ 724,000	(reflects full staffing from beginning of year)
2010	£ 796,000	
<b>TOTAL</b>	<b>£2,505,000</b>	

7.2 The total cost of IMSO's LRIT operations will therefore be approximately £2.5 million over the full 3.5 year start-up period. At the start of this period (in the latter half of 2007 and throughout 2008) the organization's costs will have to be paid entirely out of start-up capital. During the second half of the period, beginning in 2009, IMSO expects to receive revenue from LRIT Oversight and Audit Fees and has also developed illustrative figures for this.

7.3 Comparing IMSO's illustrative revenue calculations with the agreed illustrative budgets (paragraph 7.1) during the start-up period and beyond, Table 3 shows the deficit/surplus in each year and the amount of capital therefore required to offset the shortfall in the years 2007 to 2010:

Year	Total Revenue (£)	LRIT Budget (£)	Deficit = Capital required
2007	0	314,000	314,000
2008	0	671,000	671,000
2009	384,540	724,000	339,460
2010	767,340	796,000	28,660
typical (2011+)	876,960	835,800	surplus = 41,160

Table 3:

*Projected Capital Requirements - 2009 to 2011 and beyond*

7.4 The start-up capital required by the Organization is therefore calculated as the sum of the deficits in years 2007 to 2010 = £1,353,120. However, there are many uncertainties in the assumptions upon which this figure is based, and it would be unwise in the extreme for an intergovernmental organization, which relies entirely on public funds and is unable to accept any risk that its Member States might be required to contribute to its budget, to fail to provide for those uncertainties. The Director has assessed the level of risk involved, and believes that an allowance of +25% should be made in the capital requirement for 2009 and 2010, in case there is a slower increase in the number of ships reporting during the start-up period. This results in a total capital requirement over the years 2007 to 2010 of £1,445,150, distributed over the period as shown in Table 4:

<b>Year</b>	<b>Base requirement (£)</b>	<b>Margin for Uncertainty (%)</b>	<b>Total Capital Required (£)</b>
2007	314,000	0	314,000
2008	671,000	0	671,000
2009	339,460	25	424,325
2010	28,660	25	35,825
<b>TOTAL</b>			<b>1,445,150</b>

*Table 4: Total illustrative capital requirements 2007 to 2010*

7.5 The Director is therefore seeking contributions from SOLAS Contracting Governments, IMSO Member States, interested international organizations and others, to a level of £1.5 million, to enable IMSO to begin actively co-ordinating the start-up of the International LRIT System.

## **8 IMSO Charging Policies**

8.1 IMO has accepted that the LRIT Co-ordinator should be able to recover its costs for the LRIT services it provides. In this context, the IMSO Member States have required the Director to ensure that all such costs are in fact recovered. The Director has therefore decided to adopt the following general charging policies:

.1 As a general principle, IMSO will charge participating Data Centres (DCs) and the International Data Exchange (IDE), on an annual basis, in advance, for the oversight and audit services they require for continuing participation in the international LRIT system, in accordance with the Performance Standard and the requirements of the IMSO LRIT Service Contract;

.2 Additionally, IMSO will charge Application Service Providers (ASPs) providing services to the International Data Centre an Administration Charge, on an annual basis, in advance, for the costs incurred in providing certification and annual review, at the beginning of each year, in accordance with the

Performance Standard and the requirements of the IMSO LRIT Service Contract;

8.2 In addition to the charges for oversight and audit described above, IMSO will be required to undertake a number of "one-off" functions relating to the evaluation and testing of new and modified elements in the International LRIT System. IMSO intends to charge fixed fees for these services.

8.3 IMSO, as an intergovernmental organization, is not authorised by its Member States to incur any level of debt and, because of the way it is funded entirely from contributions paid by those it oversees, does not have any reserves of money. IMSO must therefore adopt Terms of Business that do not allow any credit on the part of those who are liable to pay IMSO for services within the International LRIT System. IMSO will therefore insist that all fees and other payments for which LRIT elements become liable are paid in full before any service is provided.

8.4 In order to assure the Member States of IMSO, and other commercial entities who will participate in the International LRIT System, that levels of debt can be completely controlled, IMSO proposes to establish a procedure whereby any element that has not paid a legitimate invoice will be denied access to the international elements of the LRIT system. This system, universally adopted by the global communications industry and others, is known as "barring". Barring may also be used as the ultimate control mechanism for any LRIT entity that consistently fails to meet the operational or technical requirements of IMO, as expressed in the Performance Standard or other core documentation.

8.5 IMSO intends to establish rules under which such barring can be imposed, and be lifted, in an equitable and transparent manner that is acceptable to IMO, IMSO Member States and commercial entities participating in the LRIT system. It is most likely that such barring will be effected through action at the International Data Exchange (IDE). IMSO expects to require the chosen operator of the IDE to provide a facility capable of imposing or lifting a bar, at the request only of the LRIT Co-ordinator, within 1 hour of such a request being made. It is unlikely that any commercial entities will risk participating in the LRIT system unless such a procedure is in place.

8.6 Details of the IMSO Charges will be published when they have been finalised by the Organization and will be made available to IMO at COMSAR 12 and the Committee at its next session.

## **9 Evaluation of IDE, IDC, and other Start-up functions**

9.1 The Performance Standard requires that:

*"14.2 The LRIT Co-ordinator should assist in the establishment of the International LRIT Data Centre and International LRIT Data Exchange by:*



- .1 *participating in the development of any required technical specifications taking into account the present Performance standard and any relevant decisions of the Committee;*
- .2 *issuing requests for the submission of proposals for the establishment and operation of the International LRIT Data Centre and International LRIT Data Exchange;*
- .3 *evaluating the management, operational, technical and financial aspects of the proposals received taking into account the present Performance standard and any other related decisions of the Committee and submitting its recommendations in this respect for consideration by the Committee; and*
- .4 *participating in the initial developmental testing of the LRIT system and reporting its findings in this respect for consideration by the Committee."*

9.2 IMISO has already participated in the work of the IMO *Ad Hoc* Working Group on Engineering Aspects of LRIT to "develop ... technical specifications ... etc".

9.3 IMISO issued a Request For Proposals (RFP) for the Establishment, Operation and Maintenance of the International Data Exchange (IDE) and/or International Data Centre (IDC) on 14 May 2007 – the earliest opportunity afforded by the programme of meetings of the *Ad Hoc* Working Group and other essential preparatory sessions. The RFP calls for proposals to be submitted to IMO by 3 July 2007, allowing time for IMISO to evaluate any proposals received and submit comments in time for consideration by MSC 83.

9.4 In addition, the Performance Standard also requires that:

*"14.3 The LRIT Co-ordinator should perform the following administrative functions:*

- .2 *participation in the testing for the integration of new LRIT Data Centres into the LRIT system and providing relevant information to the Committee;*

The IMO *Ad Hoc* Working Group on Engineering Aspects of LRIT, in which IMISO participated fully, has developed Test Protocols for Development Testing of the LRIT System. In developing its draft Test Protocols, the IMO *Ad Hoc* Working Group on Engineering Aspects of LRIT has recommended the use of a Group of Experts, nominated by the Committee, to assist the Co-ordinator in reaching valid and independent technical conclusions. IMISO will build on this work to shape its participation in the initial development testing of the IDE and IDC, and the integration testing of new LRIT Data Centres. IMISO intends to submit a report on its findings in this respect to MSC 84.

## 10 Procedures for Oversight and Audit

### 10.1 The Performance Standard requires that:

*"14.4 The LRIT Co-ordinator should undertake a review of the performance of the LRIT system taking into account the provisions of regulation V/19-1, the present Performance standard and any related decisions of the Committee and should report its findings to the Committee at least annually. In this respect, the LRIT Co-ordinator should:*

- .1 review the performance of Application Service Providers (or Communication Service Providers when they act as Application Services Providers) providing services to the International LRIT Data Centre;*
- .2 audit the performance of all LRIT Data Centres based on archived information and their fee structures;*
- .3 audit the performance of the International LRIT Data Exchange and its fee structure, if any; and*
- .4 verify that Contracting Governments and Search and rescue services receive the LRIT information they have requested and are entitled to receive."*

10.2 IMSO is in touch with various potential ASP and Data Centre providers in industry and among Contracting Governments, and has begun to develop procedures for undertaking the above tasks. IMSO anticipates hiring specialist staff to complete the formulation of these procedures and perform the audit role, in due course. It is, however, too early to provide specific detail as to the procedures to be employed at this session of the Committee, given the fact that no specifics yet exist for the design and implementation of the LRIT elements concerned.

### 10.3 When performing the tasks of oversight and audit:

*"14.5 The LRIT Co-ordinator should, for the purpose of reviewing the performance of the LRIT system:*

- .1 be given the required level of access, by the LRIT Data Centres and the International LRIT Data Exchange, to management, charging, technical and operational data;*
- .2 collect and analyse samples of LRIT information provided to LRIT Data Users; and*
- .3 collect and analyse statistics compiled by LRIT Data Centres and the International LRIT Data Exchange."*

10.4 IMSO is already working with potential providers of this information to ensure that they are aware of the requirement and are making preparations to fulfil it. IMSO will, in due course, develop guidance on what is expected and how such data should be made available for audit. In the meantime, IMSO anticipates hiring an expert statistician to develop and operate the Organization's audit procedures.

## **11 Recommendations for Improvement and Amendment of the Technical Specifications, Performance Standards etc.**

### **11.1 The Performance Standard provides that:**

*"14.3 The LRIT Co-ordinator should perform the following administrative functions:*

- .3 participation in the testing of new or modified procedures or arrangements for communications between the International LRIT Data Exchange and the LRIT Data Centres and providing relevant information to the Committee.*

*and*

*14.6 In addition to reporting to the Committee on the performance of the LRIT system including any identified non-conformities, the LRIT Co-ordinator may make recommendations to the Committee, based on an analysis of its findings, with a view to improving the efficiency, effectiveness and security of the LRIT system."*

11.2 The IMO Ad Hoc Working Group on Engineering Aspects of LRIT has considered the procedures that might be employed in this regard, and expects to codify those procedures in the draft Protocols for the Testing and Integration of new LRIT Data Centres into the System. IMSO has participated in the development of those recommendations, and will operate in accordance with them once they have been adopted by the Committee.

## **12 Liaison with and Reporting to the Maritime Safety Committee**

12.1 Once the International LRIT System is in operation, IMSO anticipates reporting to the Maritime Safety Committee on an annual basis, as is currently the practice for GMDSS services. However, during the start-up period until 2010, it is expected that reports will be made more frequently: to each session of the Committee.

12.2 During the start-up period specifically, and as required once the system is mature, the IMSO Directorate intends to maintain a close liaison with the IMO Secretariat, to ensure that the expectations of IMO continue to be met in this regard.

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